DISASTER PLANNING

For Government of Alberta RECORDS

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DISASTER PLANNING
FOR GOVERNMENT OF ALBERTA RECORDS

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PREFACE

Planning for an event that may never happen requires extraordinary resolve and objectivity. It's so much easier to delay. But — what if? What if the unthinkable were to happen?

The task of putting together a survival plan for essential Government records may not be as imposing as you think. In fact, if you do no more than identify your essential records, you will have accomplished a major part of the work.

We hope this booklet will get you started, and that it will keep you from getting bogged down in needless complexity. What we offer here are basic, flexible suggestions toward a plan for a fairly large operation; you may not require all of them for a smaller operation. Remember, any plan is better than none at all.

SECTION 1: IS YOUR VITAL INFORMATION SAFE?

Snapshots of Disaster

The place: a Canadian engineering library
The time: January 1977

The fire started in the early morning hours, in the building that housed the library. It was not detected immediately, because it travelled upward behind false interior walls. The library was not directly affected by the fire, but one valuable collection was severely damaged by water. These materials were immediately transported to a vacuum chamber and kept at a low temperature; however, the drying process was far too slow. Although a contingency plan for the library had been completed just months earlier, this was the staff's first practical experience with disaster. When decisive action was most crucial, they were forced to experiment with various drying methods, while costs mounted and materials deteriorated.

The place: an American military personnel records centre
The time: July 1975

Records and archives personnel could not enter the premises until four days after the fire. Recovery was far more difficult than had been expected; water stood on every floor of the six-storey building. Summer heat and a lack of air circulation caused the humidity to rise rapidly, inviting the growth of mold. Chemical spraying was begun, but was hampered by the fact that the fire continued to rekindle and required more water. The system of drying wet materials in stacked milk cases proved inadequate for the tremendous volume that required treatment.

The place: an American branch library
The time: November 1971

The fire broke out just before midnight. After it had been extinguished and the building was safe to enter, frantic efforts were made to salvage wet materials. There were numerous delays in getting authorization for needed emergency services and funds. By the time activities became organized, the damaged materials were judged to be beyond recovery and were bulldozed into a sanitary landfill.

Could Your Records Survive?

Without warning, your floor or entire building could suddenly become a disaster area as a result of fire, flood, earthquake, arson, vandalism, or mechanical failure. Any unplanned destructive event is a disaster, and each type requires different action. In the midst of a crisis, there is no time to search for floor plans, study provincial emergency Acts or look for procedures. Emergency action must be immediate and decisive.

Would you know what to do if a disaster struck your department? How would it carry on without its vital information? How long would it take to get back to normal? The most important element for the successful recovery from a disaster is to have a written disaster plan, and second, that the plan be effective when it is needed.

Disasters can and do occur. Although Alberta is not particularly disaster prone, there are more than 60 types of emergencies that could occur here, from floods to war. It is no longer enough to rely solely on preventive measures in the hope that a disaster will never occur. No amount of precaution can reduce this risk to zero. The disaster contingency planner must think the unthinkable, foresee the unforeseen, and expect the unexpected. He or she must select the people who will be able to act quickly and efficiently to put the plan into operation.

Representatives from several Alberta Government departments have approached the Records Management Branch seeking guidelines on various aspects of disaster prevention and recovery. It is apparent that few, if any, have in place a workable plan. This is a vital concern, since most Government operations depend heavily upon their records, particularly their data centres. Data processing managers can no longer afford to play the odds. The possibility of losing the informational lifeblood of a department has become too frightening to ignore.

At present, there are numerous players involved in disaster planning, each preparing plans without an awareness of the other. There are regulations, practices and procedures for identifying essential records, but due to lack of direction this identification is not performed. The Government of Alberta insures its valuable records; however, they must first be identified and their value assessed. Although the essential records program has been in existence for over ten years, very few records have been identified as such, and these few are outdated. Should disaster strike tomorrow, you may be able to save lives and resume work, but you have no way to reconstitute the information your department needs in order to operate.

SECTION 2: THE COMMITMENT TO PLANNING

The Investment of Resources

The most important thing to understand about emergency planning is that it should cover only what is necessary for essential functioning, not what can be replaced later or rectified after operations have resumed. The objective should be for the restoration of vital services as soon as possible. Some departments have delayed the development of a plan because they see it as an intensive information processing effort, while others have prepared plans that are too costly, too complex, and may not even be workable.

What you need is a simple, flexible and practical plan. But the formulation of even a simple plan is no easy task; it must take into account all the factors peculiar to the department. A commitment of resources must be made to support the research and coordination of the plan, as well as the implementation of new policies and procedures where necessary. Such a project may take several years, therefore endorsement by management is necessary.

Planning consists of a series of interrelated steps. Essential records must be identified, a disaster team must be chosen and trained, surveys must be made (in some cases) to identify needed upgrading of the structure, and objectives must be established along with procedures and techniques for recovery. A chain of command, a reporting mechanism, and the authority to disburse funds are also part of the plan.

The cost of developing and maintaining an essential records protection program should be weighed against the cost of an interruption of the department's operations. The objective is to identify, prepare and store records necessary for the continuity of vital functions in the event of any kind of disaster. The plan should be twofold: prevention and recovery.

One person should be appointed to oversee the formulation of the plan, one who is familiar with the internal organization and the preservation of record materials. This person could be the emergency planning officer or a selected, qualified manager.

The plan should be prepared in consultation with the applicable authorities: the Fire Commissioner (Labour), Risk Management & Insurance (Treasury), and Occupational Health & Safety (PAO), all of whom should receive final copies. If these parties are fully aware of such planning, salvage operations will be greatly facilitated and may begin without waiting for an onsite inspection by the departmental disaster coordinator or insurance adjuster.

SECTION 3: STARTING THE PROJECT

Pitfalls to Avoid

1. Inexperienced planners: Choosing practical objectives requires experience and imagination.
2. Excessive costs: Without firm objectives, it's possible to get carried away, not only in creating and maintaining the plan, but in setting up elaborate backup networks and stocks of equipment that may not be necessary for survival.
3. An untested plan: A plan that is never tested has little chance of being effective. Management may assume it has a workable plan because a manual on the subject exists somewhere.

Steps to Being Prepared

Roughly assess your present situation, that is, the present vulnerability of your records in general.

Spend some time thinking about how you will approach the task. You will have to assemble a disaster preparedness committee and then divide the responsibilities (Appendix V). The members of the disaster action team will generally be the members of the disaster recovery team. Make sure everyone knows his or her role in an emergency, including lines of succession. Remember, if your department occupies more than one building, each will require a plan. But do keep your plan, or plans, simple.

1. Start the project.
2. Get the commitment and support of management.
3. Identify your essential records (Section 4 and Appendix I).
4. Identify the units in which they are stored (Section 4).
5. Set realistic objectives and examine your legal position. You must understand what you can and cannot do in an emergency.
6. Look at existing plans and security measures (Appendixes III and IV).
7. Identify the members of the disaster team and their duties (Appendix V).
8. Negotiate an emergency operations centre site (EOC).
9. Prepare a rough outline and calculate the cost (Sections 4 and 6).
10. Determine the protection requirements for essential records (Appendix VI).

11. Estimate the value of your essential records for insurance purposes (Appendix VII).

12. Prepare prevention and post-disaster procedures (Section 7, Appendixes III, IV, V and VIII).

13. Create the final plan for approval and distribute it to your staff (Appendix VIII). Be sure that it falls within the scope of the departmental disaster plan.

14. Give copies to Public Safety Services, Occupational Health & Safety, Risk Management & Insurance and the Fire Commissioner.

15. Test the plan. Conduct a table top exercise annually and a full scale exercise every five years (Appendix X).

SECTION 4: WHICH RECORDS ARE ESSENTIAL?

Identifying Essential Records

One of the most difficult aspects of establishing an essential records program is that of selecting the vital, as distinct from the desirable, records. Essential records are those that are vital to the continued existence of the department. Emergency plans and any records that must be presented as evidence to owners, creditors, debtors and governments are essential records. These are the records of ownership interest, legal status, party to a contract, and employment. In the event of disaster, these are the records that will be needed to collect outstanding receivables, protect the department against unjust claims, comply with regulations, and minimize the interruption of operations (Appendix I).

Essential records can be identified if the department already has a department-wide record classification plan or complete area inventories. Records retention schedules, if prepared properly, will indicate which records are essential. In a predominantly case file, forms driven environment, a forms inventory will lead you quickly to the most essential information. You must always be alert to possible interdependencies between bodies of information and sets of records.

Electronically generated information must also be taken into account. The identification of these records and the protection of mini and mainframe systems must be coordinated through the EDP manager in consultation with the Security Manager, Systems Management and Coordination Branch, Information Services, Public Works, Supply and Services.

Before you start, these are the things you should ask yourself:

1. Which are your essential records?
2. How are these records identified?
3. Where are they stored?
4. Are they protected with backups?
5. How are the inventories maintained, and by whom?
6. Are you familiar with the Emergency Planning Regulations of the Public Safety Services Act (Appendix II)?
7. Are your essential records under a special program?

Classifying Essential Records

Generally speaking, you will have four kinds of records in your holdings: vital, important, useful and expendable. For disaster planning purposes, you will be concerned only with the first two types. These will be your essential records. They will be divided into three categories:

Category 1: Records giving information essential for the survival of the department during the post-loss phase, such as plans for responding to emergencies; records of ownership interest, legal status, party to a contract, and employment. These records must be backed up at an off-site location.

Category 2: Records giving information necessary for the re-establishment of the organizational pattern, such as those relating to public health, protection of life and property.

Category 3: Records giving information necessary for the re-establishment of the basic rights of individuals and corporate bodies, such as legal, financial and property rights.

Creating Essential Records

In addition to your now existing essential records, there is valuable information that may not yet exist in a form suitable for emergency use. This information must be created for the purposes of emergency planning; basically, it falls into two categories:

1. Administrative: This consists of lists of key personnel, delegations of authority, inventories of vital equipment. This type of information is usually scattered in such places as directories, but is easy to gather and not costly.

2. Engineering: These records are more costly and difficult to compile. A great quantity of information from master forms of maps, plans and charts must be prepared, and these master forms may not even exist. The cost, however, is still less than the duplication in entirety of thousands of maps, plans and charts.

It is necessary to cooperate with other departments, and with Alberta Public Safety Services, to avoid duplication in the preservation of these records. Be sure that the information listed in Categories 2 and 3 is not easily available in field offices, in other departments or at another level of government. On the other hand, there must be no serious gaps in the preservation of essential records. In some circumstances, a bit of duplication is both necessary and desirable, such as Orders-in-Council and medical directories. It is never safe to simply assume that another body is keeping certain kinds of vital information. Whichever information is chosen, it must be as complete as possible and be readily usable. Practical and mechanical considerations must not be overlooked.

Once the essential records have been selected, the question arises as to the necessity of storing duplicate copies off-site. Generally, summary versions are more realistic for preservation and future use than the original version. Maps and pictorial types of records provide valuable information more clearly and concisely than correspondence, and should be used wherever possible to indicate such things as office locations or oil well sites. Consider carefully the ramifications of off-site storage.

Off-Site Storage Considerations

1. Records must actually be off-site, not in the same building. Off-site storage and maintenance are the responsibilities of the Records Management Branch of Public Works, Supply and Services.
2. A continuing program of duplication and updating must be maintained by the depositor.
3. The period between updates is when records are critically vulnerable. Thus, an off-site protection program that does not include on-site protective measures is no better than a part-time insurance policy.
4. Due to the high cost of resources, it may not be feasible to store duplicates of the entire collection of case files off-site. Summaries, microfilm or computer output microfilm (48X or less), listings or printouts should be used instead.

Maintain your record lists, making changes such as these:

1. Records transferred to the Records Management Branch.
2. Records to be updated, and when (bring forward system).
3. Records preserved by other departments or levels of government.
4. Current essential records scheduled to be duplicated or preserved.

Cabinets or shelving units where essential records are stored in the department must then be identified on your floor plan. They should be marked with 3M iridescent tape, the type now being adopted universally for this purpose.

SECTION 5: EVALUATING YOUR ESSENTIAL RECORDS

Appraisal Factors

Several factors affect the value of a record. Consider the following:

1. How much did it cost to create that record in the first place? What would it cost to recreate it now?
2. Does the information protect the rights of individuals, research or the business interests of the Government?
3. Is the information complete, or would other documents be necessary if action had to be taken?
4. How available is it? If the information could be obtained from another source without too much delay, its value is reduced.

In assessing the value of your essential records for insurance purposes, there are two approaches:

1. Recreating the information: Calculate the cost of gathering the information from scratch, by research, surveys, drafting, etc., and then the cost of producing and reproducing it. This is estimated by the number of man hours X $/hr for the project.
2. Reproducing only: Calculate the cost of duplicating your essential records now for offsite storage, or the cost of reproducing your offsite records for use after a disaster. The most visible form of information is paper, closely followed by magnetic and film records. Refer to Appendix VII.

One thing is certain, it would cost much less to duplicate now than to recreate later, after the information has been destroyed. For example, if you were to lose 100 cubic feet of records, it might cost $10,000.00 to recreate the information. But if you have off-site backup copies, the only additional cost is for transportation.

It is necessary to keep reproduction to a minimum, and to use the cheapest means of reproduction consistent with the purposes or use of the information on the records. Remember, it is the information you are insuring, not the carrier. Before any reproduction is undertaken, consider the following questions:

1. Could the original record be stored at a safer location without causing great inconvenience?
2. Is the record available elsewhere, in a field office, in another department, or in other levels of government, for example?
3. Would an extract or synopsis of the records meet the need, rather than a copy of the entire original record?

4. Does a summary type of record fulfill the need, or is the original record necessary? For example, personal history cards instead of the personal file?
5. Are the records available now in printed or prepared form such as annual reports, machine run, or extra typed or mimeographed copies?

From an insurance viewpoint, the better protected your records are, the less valuable they become to insure.

Insurance Requirements

1. To know which records are insured, their location and replacement value, as required in the annual inventory.
2. To establish with Risk Management & Insurance (Treasury) the cost parameters under which the department would prepare a claim for loss.

An insurance claim will be considered once the department has proven loss and submitted documents to support the claim.

SECTION 6: PUTTING YOUR PLAN ON PAPER

The Necessary Elements

Your plan must contain certain basic elements and it must be organized in a suitable format. A detailed outline of a plan is given in Appendix VII. The following is a summary.

1. The objective of the plan, who developed it and how it is to be kept current.
2. The authority for the preparation of the plan.
3. The events planned for; the locations planned for. (For data centres, consider a two-level plan if feasible, one for the loss of a teleprocessing network only, and another for the loss of the entire computer centre. Contact the Security Manager, Systems Management and Coordination Branch, Information Services, PWSS)
4. The relationship to other plans and other tenants within the same building.
5. Who is to put the plan into action, under what circumstances the plan is to be fully or partially executed, and how all the actions will be carried out.
6. A list of flexible, general procedures.
7. An outline of what is being done in the way of prevention or minimization of disaster damage.
8. The location of the emergency operations centre (EOC). This will be a predetermined meeting site for the disaster action team.
9. A floor plan showing the locations of the essential records.
10. The value of the essential records.
11. The estimated cost of reproducing essential records for offsite storage.

What Happens to the Plan

1. Following internal approvals, you will send a copy to Public Safety Services.
2. When it returns, approved, copies must go to the following:

   Records Management Branch (to begin the storage process)
   Risk Management & Insurance, Treasury
   Fire Commissioner, Labour
   Building superintendent/fire warden/owner

3. The Fire Commissioner will forward a copy to the appropriate authority having jurisdiction, in accordance with the Public Safety Services Act.

Keep your plan up to date, test it regularly and don't keep it locked in a vault. The plan should be updated at least once a year to reflect changes in personnel, suppliers, technology and laws. There is a danger that it may provide an illusion of preparedness which may not, in fact, be there when disaster strikes.

SECTION 7: FIRE!

What to Do

This handbook cannot make a clear, theoretical distinction between what would constitute a major or a minor disaster. Such a judgement can only be made once the event has occurred. The instructions in this chapter are more applicable to the salvage and restoration following a major disaster, in which outside experts would undoubtedly play a leading role.

When disaster strikes, the fire department will receive the alarm. The fire department will alert the building owner or superintendent and will then call the member of the disaster action team responsible for calling out additional members. The disaster action team will meet at the EOC.

At the EOC, the recovery director will assign team members to their tasks, according to the plan. These are detailed in Appendix V. The main functions are the following:

1. Disaster appraisal
2. EOC operations
3. Acquisition of supplies and equipment
4. Appointing staff to maintain records of funds expended
5. Overseeing the management of storage and drying facilities

The following must be contacted immediately:

1. The Records Management Branch, to obtain the starter kit and to have someone assigned to the Emergency Operations Centre.
2. The Claims Section, Risk Management & Insurance
3. Suppliers of:

    — plastic milk crates and bakers' bread trays
    — freezer truck
    — cold storage facility
    — vacuum drying or vacuum freeze drying facility
    — photo and film-drying facilities

Appraising the Damage

1. Clear entry with the local fire authority.
2. Proceed to the area with caution.
3. Make a general appraisal and report to the recovery director.
4. Make an estimate of the usable space at the disaster site for recovery purposes.
5. Make an estimate of the salvageable records.
6. Make an estimate of the number, size and makeup of the teams that will be required at the site.

7. Report to the recovery director and make any further appraisals necessary. The recovery director will outline strategies at the beginning of each day.

Do Not

1. Do not open hot cabinets or containers.
2. Do not open or close wet books.
3. Do not separate single wet sheets.
4. Do not remove wet book covers.
5. Do not press wet books or paper, or pile them up.
6. Do not wipe off mud and dirt.
7. Do not freeze photographic/film materials.

Do

1. Freeze all wet paper records.
2. Make an estimate of the volumes of records for storage and drying.
3. If possible, control temperature and humidity. Try to reach 18.3 C or less, and a humidity of 50%.
4. Determine whether any special marking sign will be required at the site, for example: Drying Area.

Prompt action will not be possible, of course, if there is no plan to follow. The insurer and the insured share a common interest in the salvage effort. By following a well prepared disaster plan, your department can minimize losses and thus keep the insurance claim to a minimum.

APPENDIX I
TYPICAL ESSENTIAL RECORDS

Category 1

These records are vital to the continued existence of the department. They are emergency plans and any records that must be presented as evidence to owners, creditors, debtors and governments; records of ownership interest, legal status, party to a contract, and employment.

1. Departmental policies and procedures
2. Alberta survival plan
3. Lists of key personnel and delegations of authority, including:
   - — Organization charts
   - — Lines of succession
   - — Top level planning staff
   - — Operational staff of departments in an emergency
4. Lists and/or master drawings, maps and charts showing locations and other valuable information on departmental and municipal:
   - — Hospitals, sanitariums, health centres, etc., their bed capacities and equipment
   - — Oil wells and natural gas reserves, including pools and their output capacity
   - — Gas plants and their capacities
   - — Oil and natural gas pipeline cut-off valves
   - — Shelter accommodation, including large public buildings throughout the province
   - — Food and clothing stockpiles
   - — Emergency social services institutions and routes of access to these centres
   - — Power supplies including generating plants, alternate facilities, underground lines, etc.
   - — Water supplies, treatment plants, main aqueducts, pumping stations, deep wells, etc.
   - — Communications such as radio systems networks, transmitters, telephone and telegraph systems
   - — Major bridge structures, highway profiles, highway crossings of oil and gas pipelines, gravel pits, etc.
5. Lists of key equipment and supplies, including operating instructions, where applicable, such as fire apparatus, communications equipment, rescue equipment, heavy machinery, highway maintenance, construction, medical equipment and supplies, etc.

6. Emergency plans of health care facilities.
7. Emergency social services manuals on feeding, clothing, etc.
8. Lists of handicapped students at special schools for identification and location purposes.
9. Lists of wards of the Government, for identification and location purposes.
10. Lists of known typhoid and undulant fever carriers and active tuberculosis cases, for their own protection as well as for public health purposes.
11. Lists of field offices and facilities available.
12. Lists of essential records and their locations.
13. Summaries of records available at field offices.

Categories Two and Three

1. A duplicate set of Category One records. All of these records are considered to be valuable for the recovery phase.
2. Each department should have records compiled which are peculiar to that department's operations. These records may duplicate, or be a part of, records maintained by some central agency. They deal only with one department's activities. They are compiled in handy summaries, which by their very nature are worth many thousands of manhours and dollars. These would include:

	Category
— Acts	2
— Regulations	2
— Orders-In-Council	2
— Treasury minutes	2
— Organization charts	2
— Alberta Gazette pages	2
— Annual Report (previous year only)	2
— Forms (one copy of selected forms used in each department)	2

3. Some departments will have under the following headings records which may be worthy of preservation. However, you will have to assess your records carefully to ensure that the records are really essential and not just desirable.

	Category
— Listings of bonds debentures, insurance records, securities investment records, etc., including those held in trust	2
— Revenue records	2
— Financial records of boards, commissions, etc., which do not fall under Treasury jurisdiction	2
— Lists of property holdings of the Government	2
— Records pertaining to the purchase of, and payment for, provincial lands by the public	2 & 3
— Personnel records including personal history cards, establishment indexes and charts, pension card records and pay records for organizations and employees held by the personnel offices of departments, commissions, boards and Crown agencies.	2 & 3
— Important legal documents such as leases, deeds, transfers, agreements, contracts, easements and attachments, where the department has the only official copy.	2 & 3
— Field survey books, also indexes relating to lands, forests, mines, agriculture, etc., (these could perhaps be stored in field offices in their present or original form)	2
— Research and technical data, including maps, plans and charts of an important and irreplaceable nature, such as special studies and surveys covering long periods of years and considerable expense (oil and natural gas research information and records of the Alberta Research Council and other scientific bodies)	2

APPENDIX II
LEGISLATION

Emergency Planning Regulation (The Public Safety Services Act)

(excerpt)

Emergency planning officer

6. The deputy head of each department shall appoint a senior official of the department to be the emergency planning officer for the department.

Duties of emergency planning officer

7. The emergency planning officer shall be responsible to the deputy head for the following:

   (i) arranging for

      (i) the protection of records essential for the department's emergency operations, and

      (ii) the safe storage of the emergency operations records at predetermined operational locations;

APPENDIX III
HAZARD ANALYSIS CHECKLIST

For assistance in assessing the likelihood of damage from the following hazards, contact the Loss Control Section, Risk Management & Insurance, and Public Safety Services.

1. Climate

   Which materials in your collection are the most sensitive to extremes and fluctuations in temperature? Do you get heavy or prolonged snowfall, or rainfall or severe storms?

2. Topography

   Is your building beside a lake or river? Is your basement below water table level? Is your area prone to avalanches, landslides or earthquakes?

3. Building Structure

   Has the roof a skylight, roof access and drains? Are there water pipes running through records areas?

4. Dangerous Goods

   Are there any gas cylinders, solvents or paints stored near the records? Are staff trained in the correct handling of dangerous goods?

5. Internal Services

   Are plumbing, electrical wiring, fire detectors, fire extinguishers and security regularly inspected and maintained? Are there up-to-date plans and drawings of these? Are duplicates stored safely somewhere else?

6. Utility Services

   Which are you responsible for? How about sewers and telephones? Have you up-to-date plans of their locations, including master switches? Is there a backup? Is water pressure adequate for fighting fire?

APPENDIX IV
HOUSEKEEPING CHECKLIST

1. Keep passages unobstructed.
2. Never store records on the floor.
3. Don't leave original documents on desks overnight.
4. Identify and store cellulose nitrate-base film safely apart from the rest of the collections and have it copied at the earliest opportunity. It is highly combustible, and it slowly decomposes under normal storage conditions releasing gases harmful to paper and film.
5. Don't pack files too tightly. This ensures that water will not cause them to swell to the point where they burst from their shelving.
6. Shelve materials so that they are set back slightly from the edge; this prevents the vertical spread of fire from one shelf to another.
7. Avoid basement storage. Water seeks the lowest level.
8. Check areas where pipes and windows are subject to condensation.
9. Install shelving at least 12" away from outside walls, 2" away from inside walls, and with the bottom shelves at least 4" above the floor.
10. Store the more valuable material on upper shelves and upper floors.
11. Do not install carpet in storage areas; it will retain water and prevent drainage, as well as interfering with temperature stabilization and relative humidity.

APPENDIX V
THE DISASTER TEAM

The division of labour within the disaster preparedness committee may be as follows, depending upon the size and the complexity of the department. Generally, there must be a recovery director and there may be a need for a recovery consultant (usually an outside expert in conservation), also an administrative coordinator, salvage crews and leaders, a cataloguer, and assisting members.

Disaster Prevention Team

1. Checks equipment, manuals, lists and problem areas regularly, as set up by the team.
2. Keeps updated lists of appropriate names and phone numbers.
3. Contacts the Record Management Branch, PWSS, for emergency supplies and facilities such as dehumidifiers, pumps, fans, freezer trucks, vacuum drying facilities, boxes, milk crates, cleaning services, fresh water and emergency generators, photocopiers, and formulates agreements.
4. Informs local fire and police protection agencies, through the Fire Commissioner, of plans and provides an emergency manual for their information, along with a list of names and phone numbers.
5. Contacts the building superintendent or property manager to ensure that there is an up-to-date list of resource people, such as plumbers, electricians, cleaning service, fire, police and plant services.
6. Distributes the emergency packet or manual.
7. Disseminates plans and information to all records staff.
8. Arranges continuing education for committee members through seminars and current literature, such as *Salvage of Water Damaged Library Materials*, the *Handbook for the Recovery of Water Damaged Records*, and *An Ounce of Prevention*.

Disaster Action Team

1. Notifies all key people as established, such as local fire authorities and police. If standing water is present, the fire department should check first for hazards before staff enter the area.
2. Appraises the damage and sets up a plan for action.

3. Assigned person calls for supplies needed first, then facilities.
4. Assigned person records expenditures.
5. Assigned recovery director organizes all activity, sets up communication, calls for volunteers through pre-established channels.
6. Sets up all bibliographic control (code and index) as deemed necessary.
7. Adjusts temperature and humidity controls. Emergency generators set up if necessary.
8. Sets up teams with pre-trained leaders to deal with the wet materials: taking off shelf, carrying, handling, packing, etc. Trains volunteers on site.
9. Arranges needed comforts, such as portable restrooms, coffee, food, etc.
10. Wraps up initial disaster steps.

Disaster Recovery Team

1. Recovery Director
   - — establishes and controls the operation of the EOC.
   - — takes charge of salvage/recovery.
   - — assembles salvage recovery team.
   - — ensures availability of keys to access areas and records.
   - — operates in consultation with PWSS Records Management Branch and with members of the disaster action team or with an outside expert, but with the exception of financial matters all final decisions will be his.
   - — determines methods and procedures for salvage.
2. Administrator
   - — establishes contact with emergency facilities and supply sources and confirms if available for emergencies.
   - — orders materials and supplies during recovery operations.
   - — controls emergency budget and contracts with outside agencies and businesses.
   - — arranges with security staff or local police for security of facilities during salvage operations, especially in situations involving sensitive records.

— organizes transportation of damaged materials.

— arranges storage of materials.

— assembles salvage crews.

— assists recovery director in controlling work and materials flow.

3. Recorder

— works with the Recovery Director to make record of the salvage effort.

4. Risk Management & Insurance Representative

— determines the application of insurance coverage.

5. Operations and Maintenance Representative

— coordinates transport, equipment, and trade labor.

6. Communications Personnel

— act as runners between the various officers.

7. Appropriate Building Representative

— effects link between the recovery director and local operations.

8. Salvage Coordinator (for each area)

— distributes salvage supplies and determines priorities.

— directs packers.

— works with the fire marshall and firemen in salvaging records.

— removes damaged records to recovery site.

— under direction of recovery director, employs salvage techniques to recover records.

9. Salvage Cataloguers (for each area)

— remove inventoried material.

— label boxes for identification.

— direct packers.

— prepare and keep up-to-date diagrams of record storage areas, block-coded to indicate priorities for salvage operations.

— identify materials and keeps track of all records during salvage operations.

10. Packers

— pack salvaged material in crates for removal from the area.

APPENDIX VI
MEDIA HAZARDS TOLERANCE

Records may have to endure fire impact, frost, water exposure, condensation, submersion and humidity.

1. Paper: can withstand temperatures to 176.5° C (350° F). Wet paper will develop mold within hours, and it can disintegrate if immersed in water or fire extinguishing chemicals.

2. Magnetic Media: can withstand temperatures up to 65.5° C (150° F) combined with a maximum relative humidity of 85%. Thus, it is not the contact between the medium and the open flame that is the hazard, but the quick rise in temperature that is created by a fire in an adjoining room.

3. Microforms: will suffer destruction if they are exposed to 60% or greater relative humidity for long periods of time. Can withstand up to 65.5° C (150° F) temperature.

4. Diskettes: are the most fragile of magnetic media. They will suffer damage at 51.6° C (125° F) when in envelopes, at a relative humidity of 85%.

APPENDIX VII
REPRODUCTION COST FORMULA

In all cases, allowance should be made for preparation and collation.

Hard Copy to Hard Copy

$$\frac{\text{Volume (inches)}}{\text{capacity of machine}} = \text{hrs} \times \text{salary of operator}$$
plus the cost of the copier and supplies

Microfilm to Hard Copy

$$\frac{\text{16mm: No rolls}}{\text{reader printer capacity}} = \text{No of rolls per hr} \times \text{hrs} \times \text{salary of operator}$$
plus supplies

Use the same formula for 35 mm and microfiche.

Hard Copy to Microfilm

Private Firm
Type & size = No. of frames × cost per frame

In-House

$$\frac{\text{No. of frames}}{\text{standard per hour}} = \text{hrs} \times \text{salary of operator}$$
plus processing and supplies

Computer Memory to Hard Copy

Electronic Tape-to-Tape
Each × cost per hr

Electronic to Paper

$$\frac{\text{Memory storage}}{\text{printer capacity speed}} = \text{hrs} \times \text{machine time} \times \text{salary of operator}$$
plus supplies

Electronic to Computer Output Microfilm
10% of the above

Replace Computer Programs

$$\frac{\text{No. of lines}}{\text{No. per day}} = \times \text{ system analyst's salary}$$

Small Program: less than 500 lines = 100 lines/day
Moderate Program: 500 to 3000 lines = 75 lines/day
Large Program: more than 3000 lines = 50 lines/day

APPENDIX VIII
SUGGESTED OUTLINE OF A PLAN

Part 1: Introduction and Statement of Purpose

Here, you state why the plan has been written and what it is intended to achieve. You should say something about who developed it and how it is to be kept current.

Part 2: Authority

Document the authority for the preparation of the plan and subsequent action. Normally, it will be prepared at the request of the deputy minister or counterpart. In this part you will also designate who is to be responsible for the records during the emergency, that is, who will coordinate the execution of the plan, and the line of succession.

Part 3: Scope of the Plan

This part will generally have three sections as below.

A. Events Planned For
Itemize each kind of emergency event dealt with in the plan. For each, indicate the circumstances under which the event might occur and indicate what its expected impact on the department could be. List the most serious or most likely events first.

B. Locations Planned For
If the department's records are located only at one site, this section may not be required. However, if more than one site or building is involved, indicate here which sites are covered by the plan and the circumstances under which the plan might or might not apply to each individual site.
Alternatively, separate plans could be developed for each site or building if this would be more practical.

C. Relationship to Other Plans
If the department has other action plans, such as a medical emergency plan, a fire reaction plan or a plan for dealing with criminal activity, it is usually a good idea to describe how all plans relate to and supplement each other and to indicate the circumstances under which they may be executed individually or simultaneously.

Part 4: Emergency Procedures

In this part, you state who is to put the plan into action, under what circumstances the plan is to be partially or fully executed, and how all the necessary actions are to be carried out. Choose people who will be able to act quickly and decisively. List names, phone numbers and assigned responsibilities. Describe the transition from disaster action to disaster recovery.

Usually it is best to devote individual sections to each of the emergency events identified in Part 3. For each of these events, describe what is to be done in advance of the event (if there is sufficient warning), what is to be done during the event, and what is to be done in the way of recovery. This part is the heart of the plan because it tells exactly what is to be done to prevent, minimize, or cope with each of the events that may occur in the building.

Prepare a disaster prevention checklist (Appendixes III and IV), and take a survey of your building and its surroundings. This will identify potential problems that could cause disaster or aggravate the situation. Large or complex departments may wish to divide this part of the plan into three parts dealing, respectively, with: disaster avoidance, disaster mitigation, and disaster recovery. Each part then will be in sections as described above.

Appendixes

Use as many appendixes as may be needed to include information vital to the success of the plan, but which may change so often as to make its inclusion in Parts 1 to 4 impractical. Suggested subjects follow; you may include any others you wish.

1. A staffing chart of the department, an organization chart showing the department's relationship to other departments (such as city government or other outside governing authority), and a chart illustrating the disaster control organization within the department. Other organizational charts may illustrate the department's relationships to local civil preparedness authorities and to disaster and welfare agencies, including the Red Cross.

2. Call-up lists of key personnel who will be valuable to the execution of the plan; include name, title, address, telephone number, and the duties assigned to each.

3. Instructions for contacting outside organizations, such as the fire department, the police department, local electric, gas, water, and telephone companies, hospitals and ambulance services, plumbers, electricians, locksmiths and glass companies, guard and janitorial services, exterminators, attorneys and any other key people or agencies that might be of assistance. State why each is to be called and what service each will be expected to render. It is critical to keep these lists current; review them at regular intervals, at least annually.

4. Floor plans of the department showing the locations of essential records.

5. An inventory of essential records and the priorities for their protection. The estimated cost of creating or reproducing valuable records for offsite storage.

6. A summary of the arrangements that have been made for the relocation of records. This should include the names of persons to be contacted when temporary space is needed and information about alternative space in case the primary space also is suffering from the same disaster.

7. Instructions for ensuring that emergency operation of the building's utilities and for service and operation of vital building support systems.

8. Probably the most important appendix will be a list of resources that might be needed in an emergency. For Edmonton and Calgary locations, the Records Management Branch will have ready for use a minimum starter kit for major disasters. It will contain the items listed at the end of this appendix. At these locations, there should also be a list of local suppliers and supplies over and above those to be provided by the Records Management Branch, sufficient to apply in a minor disaster (Appendix VIII).

   Record the supplies and materials you will need, what they are to be used for, who is to buy them, who is to use them, and where they can be found. Record your arrangements for borrowing materials, equipment and personnel from other departments, how to transport items and whom to call. List specialists who can be called upon for assistance in preserving damaged record materials.

   Provide a two-part list like this to each member of the team.

Services	Telephone Number
Fire Department	
Records Management Branch	483-4012
Building Superintendent	
Police Department	
Facilities	
Computer Facility	
Photocopier supplier	

   For other locations, a complete list of supplies should be drawn up. Copies should be kept offsite, in the homes of key personnel. List additional supplies and suppliers suitable for your own needs. If you have 10 cu.ft. of essential records, you will need the items and amounts listed on the following page.

9. The final appendix should be a glossary of special terms that are used in the plan so that all its users will be speaking the same language.

MINIMUM STARTER KIT BASED ON 10 CU.FT. OF RECORDS

This kit is intended for major disasters, and will be maintained in Edmonton and Calgary by the Records Management Branch.

1.	Tarpaulins and plastic sheeting	18 m^2
2.	Plastic crates	20
3.	Arrangements for fans	4
4.	Arrangements for portable dehumidifiers	4
5.	Arrangements for wet and dry vacuum cleaner	1
6.	Waterproof and grounded heavy-duty extension cords	6
7.	Sponges	4
8.	Brushes	4
9.	Water hose (100 ft.)	1
10.	Absorbent paper (terry towels) 50/pkg., 12 pkg./case	3 cases
11.	Fishing line	1,000 m
12.	Plastic paper clips or pins	20,000
13.	Hooks	200
14.	Pallets to raise material off the floor	1
15.	File folders and labels	1,000
16.	ARC boxes	15
17.	Waterproof ink-felt pens	10
18.	Self-adhesive 3" × 3" labels 100/Box	1 box
19.	Terry cloth towels 3' × 5'	10
20.	Scissors	10 pairs
21.	Rubber gloves	6 pairs
22.	Plastic bags (zip-lock), 20" × 20"	100
23.	Freezer wrap	1 roll
24.	Freezer tape	2,500 ft.

APPENDIX IX
SALVAGE AND RESTORATION TECHNIQUES FOR MINOR DISASTERS

SALVAGE

Water Damaged Paper

The need for speed cannot be overemphasized. Wet files will already have been damaged from dirt and from the swelling that takes place when paper becomes wet. The emergency exists because wet materials will grow moldy within hours. Mold will not only cause hard-to-remove stains on paper, it will eventually start to decompose them. Prompt and correct action can minimize the damage which water has already done and will greatly decrease the problem of mold growth. **Do not try to attempt restoration on site.** This will slow things down and cause further damage.

The following article outlines the people, equipment and procedures necessary for salvaging water-damaged valuable records and preparing them for freezing.

People: One or two persons are required to unload a file cabinet and prepare the files for freezing.

Equipment: A basic salvage equipment list for preparing files from a single four drawer file cabinet follows. It is estimated that a four drawer file cabinet will contain 200-400 files, each of 50-100 pages (approximately 20,000 pages).

Item	Quantity
Plastic milk cartons or ARC boxes	14
Freezer paper, 1000′ roll of 24″, or plastic bags 20″×20″	1 400
Freezer tape	2500′
Labels, 3″×3″	400
Waterproof ink marker pen	1

Location: Unloading the cabinet at the disaster site is preferred. However, if environmental or physical conditions prevent this, the cabinet must be moved at the earliest opportunity to a safe location.

Temperature and Humidity: Temperature and humidity must be controlled if possible. Try to reach a temperature of 18 degrees Celcius or less. Reduce the humidity as rapidly as possible, even if you have to rent de-humidifiers. Measurements should be taken frequently and regularly with a hygroscope or a sling hygrometer. Do not let maintenance men try to convince you that the humidity will go down if you raise the temperature; this will only hasten the growth of mold. Fans should be brought in to increase air circulation. If the electricity is out, arrangements should be made for portable generators.

Salvage Procedure: This is the stage of physically unloading the cabinet, removing the files to be restored and separating those files to be discarded. If files have been previously identified and located, this task is relatively simple. However, if there is no salvage plan, it is quite likely that all or most files must be removed and identified at a later stage, during restoration.

1. Remove the wettest files from the area first, since this will lower the humidity. Files should be removed from the lower drawer as they normally have received the most water. Work quickly, but carefully; wet materials are very fragile. When you pack files, stand or lay them so they do not fall over and become contorted. Do not pack them too tightly - allow the air to circulate around them.

2. Inventory the files as they are removed. Pack them loosely in crates or boxes. Plastic milk crates are best because they are open-sided to allow for good ventilation, solid and non-crushable, easy to carry, and easy to stack, without crushing their wet contents. The second best choice is a cardboard box lined with freezer paper. These should not be stacked too high or they will collapse.

3. Freeze wet files as soon as possible. Wet paper is extremely fragile; it must be treated rapidly in order to prevent mold growth. Drying is an extremely long and costly treatment suitable for not more than a few files at a time, so the best procedure is to freeze them immediately. But remember that freezing is not a drying method, nor will it kill mold. Freezing should be done very rapidly in order to produce the smallest ice crystals. If only a few files are affected, freezing can be accomplished in a home freezer.

   If the files are to be frozen in the boxes, they should be wrapped in freezer paper, with freezer paper between the layers of files. If they are to be freeze- or vacuum-dried afterwards, however, there is no need to wrap them. Packages of wrapped files should not exceed about two inches in thickness. Contents can be noted on the freezer paper.

4. At the freezer, freeze the files in the containers they were packed in rather than removing them from the boxes in the freezing chamber. The freezer should be maintained at minus 10 degrees Celsius. This will stabilize the files in the condition in which they were found, thus preventing further deterioration.

Once the files are frozen, you will have time for further planning and getting things ready for drying and restoration as well as other procedures necessitated by the situation (building repairs, etc.). Then you can work on the frozen files a little bit at a time. Freezing can be done indefinitely, some very large collections of materials have been frozen for as long as six years, with little or no permanent damage.

Water Damaged Magnetic Media

1. Separate wet from dry tapes.
2. Check labels for legibility and replace, if necessary.
3. Empty any water from tape containers.
4. Allow tapes to dry without heating, preferably where there is high air circulation.
5. Once dried, run the tapes on a tape cleaner or winder to remove debris.
6. Rerecord onto a new tape.

Water Damaged Photographic Materials/Film

1. Immediately, immerse the photographs in cold water, preferably in plastic garbage cans (not metal). Keep immersion time to a minimum.
2. Keep them wet until they have been separated from envelopes and each other. Never allow them to dry while in contact with anything.
3. Gently rinse them in clean water if they are covered with dirt. Place them on clean paper or nylon screens, face up. If the emulsion layer is quite hard, prints on paper can be placed face down to minimize curling.
4. If they cannot be treated immediately, freeze, thaw and air dry. When ready to recover, it may be necessary to reimmerse the material in cold water to ensure that it does not dry before it is separated.

RESTORATION

Water Damaged Paper

The following outlines the people, equipment and procedures necessary to dry a basic unit of 100 sheets of paper by air drying.

People: Three people will be needed; two to separate and prepare sheets for drying, and one to transfer the sheets to the drying table and record their location.

Equipment:

Item	Quantity
9''x12'' polyester film sheets (3/1000'' thickness)	14
Polyester web sheets	200
Folding tables 6'×2-1/2'	8
Plastic Sheets 8'x4'	8
Paper Towels/blotting paper/ unprinted newspaper	120 sq. ft.
Squeeze mop	1
Bucket	1
Hand sponges	2
Clipboard with location sheet	1
Felt tip marker pen	1
Legal size file folders	4
Binder clips 3/4''	4
Labels 3''×3''	4

Location: The drying area should be large enough to accommodate the personnel and equipment of the drying team, and capable of maintaining a constant temperature of 21-25 degrees Celsius and a relative humidity of 30-35%.

If a constant temperature and relative humidity cannot be maintained, some or all of the following must be provided:

— heaters
— air-conditioners or de-humidifiers
— fans
— thermometer
— hygroscope or sling hygrometer
— heavy duty waterproofed electrical cord

Restoration Procedure:

1. Assemble the tables, leaving sufficient aisle space for easy movement, and cover them with the plastic sheets. Then cover the tables with paper towelling or other absorbent paper. Designate one table as the preparation table and stack polyester film sheets, polyester web sheets and hand sponges on it.

2. Place the files on the preparation table and record their titles on the location sheet. Files may be received either directly from the disaster site or from a freezer storage site. If from a freezer site, the files must be completely thawed before processing.

3. Dampen a sheet of polyester film with a hand sponge, and lay it on top of a wet pile of single sheets. The surface tension of water makes it possible for an experienced worker to ease away several sheets at the corner of the pile and roll or peel these back with the polyester. This material and the attached sheets should then be laid, polyester side down, on the table.

4. Place another piece of polyester on top of this newer pile of wet materials. You will find that by careful, gentle manipulation you can roll the film back with a single wet sheet attached to it. Place this, polyester side down, on a table. Place a piece of dry polyester web over the wet sheet, turn the sandwich over, remove the polyester film and lay on a second piece of dry polyester web.

5. Transfer the sandwich to a drying table, recording the location of the sandwich. Repeat the entire process, separating wet sheets one at a time by means of the polyester film, interleaving with dry polyester web, transferring the sandwich to a drying table, and recording the location. Note that film should be used for the initial separation. Final interleafing should be done only with web.

6. Using the location sheet as an index, assemble the files in their original order and place in an appropriate sized folder. Record the file title in large letters on a 3″×3″ label. Place the label on top of the folder and secure it and the file papers to the folder with a binder clip.

7. Pass the dried and assembled file to records management staff for further processing. They can inspect the files for further repair or restoration needs. Random inspection for mould infestation can also take place. Newly dried materials should never be packed in containers unattended for more than a day or two.

8. If mold infestation is expected (and probably as a precaution, even it it is not), the sheets should be interleaved with thymol-impregnated sheets (10-15% thymol solution in denatured alcohol). The mixing of the thymol solution should take place outside due to the toxic fumes of the solvent. The mixer should wear protective clothing against being burned and those people assembling sandwiches should wear rubber gloves.

The sandwiches should then be assembled as a polyester web, wet sheet, thymol-impregnated sheet topped by a second polyester web. The thymol-impregnated sheets should be changed often.

When the floor has been cleaned up, the surrounding area should be inspected to see if water has lifted floor tiles.

The file cabinets should be repaired or replaced, if necessary. They should be thoroughly washed with disinfectant, inside and out. Do not move materials back until the shelves are completely dry and the temperature and humidity have been restored and maintained for several days. Site inspection should continue periodically for a year to be sure no mold has grown.

Fire Damaged Magnetic Media

1. Separate, as soon as possible, those reels which appear to have sustained the least amount of heat damage.
2. Clean all debris from exposed surfaces.
3. Use the slowest speed transport available to perform at least two full wind-rewind passes. Inspect the tapes as they are being wound. If they are badly warped or stuck together, or are shedding coating, the chances for recovery of data are poor. Clean the transport after each tape is run.
4. Rewind the tapes onto clean or new reels and make new labels. Relax these rewound and cleaned tapes for 24 to 48 hours in the normal operating environment. Perform a read and recopying pass. If the tapes will not load onto the transport at this time, store them in a low humidity environment and retry at intervals.

APPENDIX X
TEST EXERCISES

Appoint an exercise control group. This group should be a permanent body and consist of four people, since it usually takes at least three to run an exercise. None of these people can be an exercise player, since it will always be their job to prepare and to run the exercise. Exercise design is limited only by the imagination of the exercise control group. If advice and assistance are required to set up exercises, the Alberta Public Safety Services should be contacted.

Exercise No. 1

The first exercise of any plan should be calling out the alert list. It can be done during or after working hours. The object is to find out how many of the disaster recovery team can be contacted and how long it takes (it is highly unlikely that you will get 100%).

It is useful to run several of these exercises during the first year to satisfy yourself that enough members of the Disaster Recovery Team can be contacted to start the recovery process. If during one of these exercises enough members could not be contacted, the appointment of backups should be considered.

Exercise No. 2

This exercise would be a discussion. The scenario could be that fire and water damage have made your records area unusable. The staff are being moved to another work area. It is the group's task to recover or reproduce the Category 1 records that were involved in the fire. The exercise control group should ask each player to state their responsibilities so that any overlaps or gaps are discussed and corrected. The remainder of the plan should then be discussed. At this stage the exercise control group could introduce complications such as some needed equipment not available, some facilities not usable, communications difficulties, etc.

If the disaster action team cannot complete the exercise during the allotted time (1/2 or 1 working day), the exercise should be run again with changes to the complications.

Exercise No. 3

This exercise should be carried out at the EOC. The disaster action team should be given a scenario and be asked to activate the EOC. First and second level telephone numbers would now be established, so that all calls from the EOC for direction would go to the first and other communication would go to the second. It should be determined whether the operation could function with only its essential records stored off site. A director should also be appointed from the exercise control group to monitor the exercise, resolve differences and to chair the review which should take place in the last hour of the exercise. Exercise No. 3 should not be attempted by new staff.